



#### **Central Valley Regional Water Quality Control Board**

14 July 2017

COALITION

Mr. Parry Klassen
East San Joaquin Water Quality Coalition
1201 L Street
Modesto, CA 95354

Dr. Michael Johnson, President East San Joaquin Water Quality Coalition 1480 Drew Ave. Suite #130 Davis, CA 95618

# 2017 ANNUAL REPORT REVIEW – EAST SAN JOAQUIN WATER QUALITY

Thank you for submitting the East San Joaquin Water Quality Coalition (Coalition) 2017 Annual Report. Staff reviewed the Annual Report for compliance with Monitoring and Reporting Program (MRP) Order No. R5-2012-0116-R3.

As noted in the attached memorandum and checklist, the Coalition complied with all MRP Order monitoring and reporting requirements in the Annual Report.

It is understood that the Coalition plans to obtain the outstanding Farm Evaluations and submit a Farm Evaluation Addendum to the Annual Report on 1 September 2017. While the percentage of surveys reported in the Farm Evaluation Addendum is expected to increase from the reported value in the Annual Report (71%), there could still be some members who may not return their Farm Evaluation survey. Staff is actively pursuing both enrollment and on-farm inspections to bring new members and noncompliant Coalition members into compliance with the Order.

The monitoring data shows a notable increase in exceedances of the hardness-based WQTL for copper during the 2016 WY (30%). Staff agrees with the Coalition's assessment that the use of copper by the Madera Irrigation District complicated the Coalition's effort to identify the sources of copper exceedances in the Coalition region. The ILRP staff will contact the NPDES program concerning the review of the Aquatic Weed Control Permit and consideration of existing water quality problems in areas permitted for copper application.

If you have any questions or comments regarding the review, or need any further information, please contact Yared Kebede at (916) 464-4828.

Sincerely,

Original signed by
Sue McConnell, Chief
Irrigated Lands Regulatory Program

Irrigated Lands Regulatory Program

Original signed by

Susan Fregien, Senior Environmental Scientist Monitoring and Implementation Unit

Enclosures: Staff Review of East San Joaquin Water Quality Coalition 2017 AMR

AMR Review Checklist

KARL E. LONGLEY SCD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCEE, EXECUTIVE OFFICER







# **Central Valley Regional Water Quality Control Board**

TO: Susan Fregien

Senior Environmental Scientist Monitoring and Implementation Unit Irrigated Lands Regulatory Program

FROM: Yared Kebede

**Environmental Scientist** 

monitoring and Implementation Unit Irrigated Lands Regulatory Program

DATE: 15 June 2017

SUBJECT: 2017 ANNUAL REPORT REVIEW – EAST SAN JOAQUIN WATER QUALITY

COALITION

On 1 May 2017, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) received the East San Joaquin Water Quality Coalition (Coalition) 2017 Annual Report. The Annual Monitoring Report and Management Plan Progress Report (MPPR) cover the monitoring results from 1 October 2015 through 30 September 2016. The complete analysis of the Nitrogen Management Plan (NMP) Summary Report will be submitted on 1 July 2017. An addendum to the Farm Evaluation will be submitted on 1 September 2017.

Staff derived a checklist (attached) directly from the MRP Order R5-2012-0116-R3 which is used to assess whether the Coalition's monitoring and management plan activities during the period covered by the report meet the requirements.

Overall, the Annual Report complies with the terms and conditions of the MRP Order. The Coalition presents information and discusses compliance with water quality standards, evaluates management practices implemented in the high priority subwatersheds, and summarizes management practices collected from Farm Evaluations. The Annual Report also evaluates the status of management plans for each Coalition zone and uses the collected water quality information to address the key programmatic questions.

The memorandum section numbers below correspond to item numbers in the attached Annual Report Checklist.

#### Item 6. Monitoring Objectives and Design

The Annual Report includes a brief description of the field sampling conditions during the reporting period; 20% of the scheduled sampling events were dry and 8% of the samples were collected from non-contiguous waterbodies (Table 31). Sediment samples were not collected from Lateral 5 ½ @ South Blaker Rd during the September monitoring event because no sediment accumulated in the channel. This sediment monitoring requirement was met at Lateral 6 and 7 @ Central Ave on 12 October 2016, which is within the sediment sampling requirement period of the MRP Order.

KARL E. LONGLEY ScD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCEE, EXECUTIVE OFFICER

11020 Sun Center Drive #200, Rancho Cordova, CA 95670 | www.waterboards.ca.gov/centralvalley

#### Item 10. Data Discussion

The TIEs indicated cationic metals and/or non-polar organics as the cause of *Selenastrum* toxicity in Zone 2 sites (Table 35), and thus the metals/pesticides that fall into these categories needs to be included in the discussion of monitoring results. Mineral oils are not required as part of the PUR data evaluation, but the discussion may include the effect of mineral oils in combination with other chemicals.

#### Item 12. QA Evaluation

Field and lab data for completeness, accuracy and precision were met for more than 90% of the samples, and all samples were analyzed within hold time. The Coalition held a meeting with the laboratory following the analysis of one environmental sediment sample and QC sample by different methods. Corrective actions were identified to prevent recurrence of the problem.

## **Item 18. Summary of Management Practice Information**

The Coalition submitted an access database of farm management practice data collected during the 2016 crop year on a Township-Range level as required by the Order. A summary of implemented management practices and associated acreage, crops grown/acreage, and information on active/abandoned wells is clearly presented (Pages 148-163).

The 2016 Farm Evaluation surveys were required from 3,370 members: 3,086 members with parcels in surface and/or groundwater high vulnerability areas, 258 members in low vulnerability areas with large farms (> 60 acres) without prior survey response, and 26 members with unknown vulnerability. The Coalition received surveys from 71% of the required members (2,397 members), representing 85% of the required acreage (590,170 acres). The Coalition assigned unknown vulnerability to parcels belonging to 8 Coalition members (252 acres) who have not returned their Farm Evaluations. Staff recommends the Coalition to include an explanation why the vulnerability designation of these member parcels is unknown in the addendum to the Farm Evaluation. Also, the percentage acreage of irrigation practices presented in Table 62 (35% drip; 36% micro sprinkler) does not match with the values presented in the text (45% drip; 44 % micro sprinkler).

The Coalition offered assistance to members in filling out their Farm Evaluation survey in order to facilitate accurate data collection. Similar to the 2015 returned surveys, the Coalition took corrective actions to ensure completeness of the 2016 surveys and verified the accuracy of the acreages provided by members, contacted members by phone, and sent reminder letters and follow-up notices in order to achieve 100% compliance. The Coalition plans to enter all outstanding Farm Evaluations by August and submit a Farm Evaluation Analysis Addendum on 1 September 2017.

## Item 20. Management Plan Progress Report Review

The Coalition reports on the status of management plan monitoring and TMDL compliance monitoring. The report also includes new management plans implemented, evaluation of management practices effectiveness, and TMDL constituents.

# Item 20.2.2. New Management Plans

As a result of exceedances observed during the 2016 WY, 9 new management plans were triggered, including two reinstated management plans, ammonia at Highline Canal @ Hwy 99 and chlorpyrifos at Merced River @ Santa Fe; three exceedances of the ammonia WQTL (January - March) occurred at Highline Canal @ Hwy 99, and a single exceedance of the chlorpyrifos WQTL occurred at Merced River @ Santa Fe in November. New management plans are presented in Table 74 of the Annual Report.

# Item 20.3.2. TMDL Monitoring

The TMDL compliance monitoring occurred in January and from May through September at the two San Joaquin River sampling locations (San Joaquin River at Hills Ferry Rd and San Joaquin River at Maze Blvd Bridge) monitored by the Coalition during the 2016 WY; the Coalition utilized the Delta RMP data from Vernalis for TMDL compliance at the third monitoring location, San Joaquin River at Airport Way near Vernalis, as part of its participation in the Delta RMP.

There were no exceedances of chlorpyrifos or diazinon in samples collected from the three San Joaquin River compliance points during the 2016 WY. There were two exceedances of WQTLs for chlorpyrifos during the 2016 WY tributary monitoring; Highline Canal @ Hwy 99 in January (0.018  $\mu$ g/L), and Merced River at Santa Fe in November (0.028  $\mu$ g/L). Highline Canal @ Hwy 99 is under a chlorpyrifos management plan and chlorpyrifos management plan is reinstated at Merced River @ Santa Fe. Results and actions related to diazinon and chlorpyrifos TMDL monitoring are discussed in depth in the San Joaquin River Chlorpyrifos and Diazinon TMDL Annual Monitoring Report.

# **Item 20.5.3. Management Practice Effectiveness**

The Coalition includes a complete analysis of the management plan activities and performance goals in the seventh priority subwatersheds (Howard Lateral @ Hwy 140, Levee Drain @ Carpenter Rd, and Mootz Drain downstream of Langworth Pond), and documented the complete analysis of management practices implemented in the site subwatersheds (Pages 120-126).

The Coalition extended its outreach effort by including members parcels located outside of the site subwatershed boundaries during the 2016 Focused Outreach (Dry Creek @ Wellsford Rd, Duck Slough @ Gurr Rd, Highline Canal @ Hwy 99, Prairie Flower Drain @ Crows Landing Rd). The Coalition coordinated a meeting with Western United Dairymen to address water quality issues in the Prairie Flower Drain @Crows Landing Rd site subwatershed with both Coalition and non-Coalition members. The Coalition emphasized that the use of the same constituents of concern in dairy cropland remains a challenge for completing pesticides and toxicity management plans in the site subwatershed. The Coalition also presented a complete summary of management practices implemented by growers in the 2016 Focused Outreach subwatersheds (Tables 55-58).

The Coalition initiated the 2017 Focused Outreach (Dry Creek @ Rd 18, Lateral 2 ½ near Keyes Rd, Livingston Drain @ Robin Avenue and Miles Creek @ Reilly Rd) and will discuss the status of management plan activities during the quarterly meetings and in the next Annual Report.

## Item 22. Conclusion and Recommendation

The Annual Report provides a summary of applied pesticides and metals (copper) exceedances between 2008 and the 2016 WY (Pages 182-231). Monitoring results from the 2016 WY indicate that the proportion of exceedances of field and physical parameters, nutrients and E.coli remained higher than exceedances of pesticides and toxicity in the Coalition region consistent with the monitoring trends observed between 2008 and 2015 WY monitoring. One notable exception is that the proportion of copper exceedances was higher during the 2016 WY monitoring (29.9%), especially compared to the 2015 WY (4.8%) and 2014 WY (3.2%) monitoring.

The Coalition evaluated pesticide applications by members and the high rainfall amount received during the reporting period. The Coalition also evaluated the Aquatic Weed Control permit for copper application (copper sulfate) by Madera Irrigation District (MID), and expressed doubt about the design and conclusion of the Mitigated Negative Declaration study. Half of all dissolved copper exceedances occurred at Dry Creek @ Rd 18 (Madera County). Overall, the comparison of the average hardness and hardness based copper concentration between the 2015 and 2016 WYs indicate that storm water might have increased the frequency of copper exceedances especially in sites located in Merced and Madera counties (Zone 3-6).

Staff will discuss the Coalition's recommendations during the next quarterly meeting.

#### **Staff Recommendations**

- The concentration of copper in January samples is incorrectly reported as 13 μg/L (page 90); the correct value (19 μg/L) is reported in Table 37.
- The discussion of mineral oils in the PUR data evaluation inadvertently signified the effect of mineral oils on the observed exceedances (page 82).
- A brief discussion of potential arsenic pathways into surface water is important in the discussion of arsenic exceedances in Zone 5 sites (page 99).
- The percentage of newly implemented practices in Table 59 is not necessary for the
  discussion of each individual management practices; staff believes that the percentage of
  newly implemented management practices does not signify the degree of implemented
  practices (page 146).
- The proportion of acreage associated with 93% of survey responses (water application according to need/total reported acreage) is useful to understand the reported percentage (page 155).
- The total number of TMDL monitoring events/months of monitoring at the two SJR compliance points is incorrect (page 173).
- The discussion of water column toxicity results should emphasize the results of any TIEs when identifying the sources of exceedances. In particular, algae toxicity was widespread in the Coalition's region. Staff requests a comprehensive discussion of algae toxicity test results, chemistry test results, and potential sources of algae toxicity.

| Repo        | rt Nan   | ne: East    | San Joaquin Water Quality Coalition 2017 Annual Report  | Reviewer Name: Yared Kebede |                        |                  |                                      |  |
|-------------|----------|-------------|---|-----------------------------|------------------------|------------------|--------------------------------------|--|
| Subn        | nittal D | Date: 5/1/2 | 2017  |                             | Review Date: 5/31/2017 |                  |                                      |  |
|             | ✓ It     |             | w code:<br>Item meets requirement<br>Incomplete item / Not included<br>Not applicable   | ts                          | te item/ Not           | ned<br>pplicable |                                      |  |
| Item<br>No. |          |             | AMR Component Name  | Item mee                    | Incomplete item/ I     | Not appli        | Page #<br>(Section #)                | Comments   |
| 1           | Signe    | ed Trans    | mittal Letter   |                             | _                      |                  | I                                    |  |
|             | 1.1      |             | Penalty of Perjury Statement  | ✓                           |                        |                  | NA                                   |  |
|             | 1.2      |             | Signature of Authorized Coalition Representative  | ✓                           |                        |                  | NA                                   |  |
|             | 1.3      |             | Dated   | ✓                           |                        |                  | NA                                   |  |
|             | 1.4      |             | Discussion of exceedances, and corrective actions taken or planned (or reference to previous correspondence)  | ✓                           |                        |                  | NA                                   |  |
|             | 1.5      |             | Submitted on time   | ✓                           |                        |                  | NA                                   |  |
| 2           | Title    | Page        | Ta  |                             |                        |                  | T                                    |  |
|             | 2.1      |             | Report title  | <b>√</b>                    | +                      |                  | Title page                           |  |
|             | 2.2      |             | Date of the report  | <b>√</b>                    | +                      |                  | Title page                           |  |
|             | 2.3      |             | Monitoring date range covered by the report   | <b>V</b>                    |                        |                  | Title page                           |  |
|             | 2.4      |             | Coalition Group name  | ✓                           |                        |                  | Title page                           |  |
| 3           | I able   | of Cont     | List of sections/chapters, tables, figures, appendices/attachments with   |                             |                        |                  |                                      |  |
|             | 3.1      |             | page numbers  | ✓                           |                        |                  | i-xvii                               |  |
| 4           | Exec     | utive Sur   |   |                             |                        |                  |                                      |  |
|             | 4.1      |             | Summary of key results and activities   | ✓                           |                        |                  | 1-4                                  |  |
|             | 4.2      |             | Brief summary of conclusions and recommendations  | ✓                           |                        |                  | 3-4                                  | The Coalition makes several recommendations for addressing gaps in water quality protection including review of the Irrigation District permits for potential source of algae toxicity and contribution to metals exceedances.   |
| 5           | Desc     | ription o   | f the Coalition Group Geographical Area   |                             |                        |                  |                                      | , and the second |
|             | 5.1      |             | General description of relevant geographic features of the Coalition area, such as location and extent of area, major landforms, land uses, vegetation types, crop types, climate patterns, key waterways, and cities | ✓                           |                        |                  | 5-14;<br>Figures 2-7;<br>Appendix IV | Land use maps for each zone are included in Figures 2-7. Each map shows location of core monitoring sites.   |
| 6           | Moni     | toring Ol   | bjectives and Design  |                             |                        |                  |                                      |  |
|             | 6.1      |             | Brief description of monitoring objectives (references to section and page numbers in Monitoring Plan or QAPP, as appropriate)  | ✓                           |                        |                  | 15;18-19                             | Normal monitoring objectives stated on page 15. Management plan monitoring objectives noted on page 18-19.   |
|             | 6.2      |             | Monitoring design aligns with Monitoring Plan, any deviations from Monitoring Plan or QAPP are described (references to section and page number in Monitoring Plan or QAPP, as appropriate)                           | ✓                           |                        |                  | 15-22                                |  |
|             |          | 6.2.1       | Representative Monitoring: sites, parameters, schedule  | ✓                           |                        |                  | 16;<br>Attachment A                  | Representative monitoring is conducted at the Core sites for the 2016 Water Year as outlined in the Monitoring Plan Update. Attachment A contains details of the sample sites, parameters and schedule.  |
|             |          | 6.2.2       | Special monitoring (Management Plan, TMDL, source identification): sites, parameters, schedule  | <b>✓</b>                    |                        |                  | 18-21                                | Preliminary analysis of the source identification studies for field parameters (DO, pH), metals (copper, molybdenum, arsenic), nutrients (ammonia, nitrate) and the legacy pesticide DDE submitted according to the timeline in the approved SQMP. TMDL monitoring conducted in accordance with the Basin Plan and the MRP of the Order. The Monitoring Results spreadsheet contains details of the sample sites, parameters and schedule.   |

| 1           | 1          |            | 2010 P   | Tilluc                    |                      | J 31 L 1   | Teview Checkii              | ),<br>  |
|-------------|------------|------------|--|---------------------------|----------------------|------------|-----------------------------|---|
|             | √ I<br>X I |            | riew code:  / Item meets requirement // Incomplete item / Not included // Not applicable   | Item meets<br>requirement | ete item/ Not<br>I   | applicable |                             |   |
| Item<br>No. |            |            | AMR Component Name   | Item me<br>requirer       | Incomple<br>included | Not app    | Page #<br>(Section #)       | Comments  |
| 7           | Sam        | oling Site | Descriptions and Rainfall Records for the time period covered under  |                           |                      |            |                             |   |
|             | 7.1        |            | Electronic copies of photos clearly labelled with CEDEN comparable station code and date   | ✓                         |                      |            | 107                         | Quarterly surface water monitoring data submittal includes electronic copies of site photos with CEDEN comparable station codes and dates.  |
|             | 7.2        |            | Sampling site name and description (e.g. geographic area, watershed, crop type and drainages that the site represents), or unique information about the site or surrounding area                         | ✓                         |                      |            | 23-28;<br>Figures 8 & 9     | Table 5 lists the land use acreage of site subwatershed monitored. Descriptions of site subwatersheds in pages 23 through 28.   |
|             | 7.3        |            | Rainfall records in graphic or narrative form (in inches of precipitation)   | ✓                         |                      |            | 32-35;<br>Figures 10-12     | A clear description of precipitation and monitoring events is provided in pages 32-35. Three storm and two sediment events sampled during the 2016 WY monitoring.   |
| 8           | Loca       | tion Map   | os(s) of sampling sites, crops, and land uses  |                           |                      |            |                             |   |
|             | 8.1        |            | Location maps show sampling sites/monitoring wells, crops, and land use with informative level of detail   | ✓                         |                      |            | Figures 2-7;<br>Appendix IV | All maps include sufficient level of detail.  |
|             |            | 8.1.1      | Datum identified on map ( <u>must be</u> WGS 1984 or NAD 1983)   | ✓                         |                      |            | Figures 2-9;<br>Appendix IV | All maps developed using NAD 1983.  |
|             |            | 8.1.2      | Source and date of all data layers identified on map   | ✓                         |                      |            | Figures 2-9;<br>Appendix IV | All maps include required layer information.  |
|             | 8.2        |            | Accompanying GIS shapefile or geodatabase of monitoring site and monitoring well information include the CEDEN comparable site code and name (surface water) and GPS coordinates (monitored sites only). | ✓                         |                      |            | CD                          | Shapefile provided as attachment include CEDEN comparable site code name and monitoring locations. CEDEN comparable site code and name with GPS coordinates found in Table 3.   |
|             | 8.3        |            | A list or table indicates: site name, ID/well number, CEDEN site code (if applicable), and GPS coordinates (latitude and longitude in decimal degrees to at least five decimal places)                   | <b>✓</b>                  |                      |            | 17                          | Site name, station code and GPS coordinates in Table 3.   |
| 9           | Tabu       | lated Re   | sults  |                           |                      |            |                             |   |
|             | 9.1        |            | Data are in tabular form, clearly organized and readily discernible  | ✓                         |                      |            | Attachment A                | Each sampling location, sampling date, sampling time, and type of monitoring is listed in the Monitoring and QC Results table.  |
|             | 9.2        |            | Previously reported exceedances match exceedances identified in the AMR  | ~                         |                      |            | 76-104;<br>Appendix I       | Exceedances reported in the AMR match with previously communicated exceedances.   |
|             | 9.3        |            | All required constituents for each site have reported results  | <b>√</b>                  |                      |            | Attachment A                | The Monitoring Results spreadsheet describes sample details.  |
|             | 9.4        |            | All necessary re-sampling completed and results reported   | ✓                         |                      |            | Attachment A                |   |
| 10          | Data       | Discuss    | ion to Illustrate Compliance   |                           |                      |            | 1                           |   |
|             | 10.1       |            | Results discussed in text agree with tabulated data  | ✓                         |                      |            |                             |   |
|             | 10.2       |            | Discussion illustrates compliance with the WDRs, or if a required component was not met an explanation of missing data or a reason for non-compliance is included  | <b>✓</b>                  |                      |            | Various                     | A brief description of sampling conditions for contiguous, non-contiguous and dry sites is provided in Table 10. Monitoring events for dry and non-contiguous sites are shown in Table 31.  |
|             | 10.3       |            | Results are compared to WDR requirements, water quality standards and trigger limits; toxicity results, TIE's and possible causes of toxicity are discussed  | ✓                         |                      |            | 69-104                      | Results from TIE identified cationic metals and/or non-polar organics as the cause of <i>S. capricornutum</i> toxicity. No <i>C. dubia</i> , <i>P. promelas</i> and <i>H. azteca</i> toxicities occurred during the reporting period. Water quality triggers in Table 33. |

|      | 1      | 2010 A  |                           | <u> </u>    |                                       |  |
|------|--------|---|---------------------------|-------------|---------------------------------------|--|
|      |        | Review code:  |                           | No.         |                                       |  |
|      |        | ✓ Item meets requirement  |                           | <b>&gt;</b> |                                       |  |
|      |        | X Incomplete item / Not included  |                           | je          | <u> </u>                              |  |
|      |        | NA Not applicable   | s t                       | . <u> </u>  | ਬੁਲ੍ਹੇ                                |  |
|      |        |   | Item meets<br>requirement | ncomplet    | applicable                            |  |
| Item |        |   | ן בי בי                   |             | Page #                                |  |
| No.  |        | AMR Component Name  | ltem<br>requi             |             | Section #)                            | Comments   |
|      | Docor  | ription of sampling and analytical methods used   | <u> </u>                  |             | 2 (000)                               |  |
| 11   | Desci  | iption of sampling and analytical methods used  |                           |             |                                       |  |
|      |        | Description of sampling methods used (e.g. type of collection, collection   | \ \ \                     |             | 00.07                                 |  |
|      | 11.1   | containers, sample preservation, transportation, handling, field measurements), with references to SOP's if appropriate   | •                         |             | 36-37                                 |  |
|      | 11.2   | Description of analytical methods used  | <b>✓</b>                  |             | 39-40                                 | Field and analytical methods used in Table 11  |
| 12   | Sumn   | nary of Quality Assurance Evaluation results  |                           | •           |                                       |  |
|      |        |   |                           |             |                                       |  |
|      | 12.1   | Acceptance criteria for all field and laboratory QA/QC measurements identified and in agreement with most recent approved QAPP; any adjustments to acceptance criteria documented and discussed       | ✓                         |             | 45-46                                 | All QC results met the acceptance criteria.  |
|      | 40.0   | Summary of accuracy (lab control spike and matrix spike recovery) and   |                           |             | 40.50                                 | All accuracy and precision results are summarized by constituent. Table 15 through Table 17 include counts and percentages for completeness per method and analyte;    |
|      | 12.2   | precision (RPD for field duplicate, LCS/LCSD and MS/MSD pairs) included for all constituents and tests  | <b>V</b>                  |             | 46-52                                 | Table 28 includes a summary of holding time evaluations; Table 18 through Table 30 include counts of each measure of precision and accuracy evaluated for the 2016 WY. |
|      | 12.3   | QA/QC results that did not meet acceptance criteria identified in a table or narrative description that is prepared by the Coalition (not laboratories)   | <b>✓</b>                  |             | 54-68                                 | Criteria tabulated in various tables.  |
|      |        | 12.3.1 Discussion of how the failed QA/QC results affect the validity of the reported data  | ✓                         |             | 46-52                                 |  |
|      |        | Corrective actions for QA/QC results that did not meet acceptance criteria are described, laboratory exception reports are included when samples are reanalyzed due to exceedance of the linear range | <b>✓</b>                  |             | 53                                    |  |
|      | 40.4   | Both field and laboratory completeness are calculated and reported;   | <b>✓</b>                  |             | 44.40                                 |  |
|      | 12.4   | overall Project completeness is determined  | •                         |             | 44-46                                 |  |
| 13   | Flow   | Monitoring Method(s)  |                           |             | 1                                     |  |
|      | 13.1   | The method used to obtain flow measurement at each monitoring site during each monitoring event is listed   | ✓                         |             | 37                                    | Table 9 lists site specific discharge methods.   |
| 14   | Sumn   | nary of Exceedance Reports submitted during the reporting period and related  | pestic                    | ide us      | se information                        |  |
|      | 14.1   | Summary of all Exceedance Reports submitted during the AMR period is included   | <b>✓</b>                  |             | 76-104;<br>Appendix I                 | Exceedance tally for each site subwatershed during the 2016 WY in Table 74.  |
|      |        |   |                           |             | - 4- 22                               |  |
|      |        | Pesticide use data for all pesticide and toxicity exceedances occurring   |                           |             | 40.40                                 |  |
|      | 14.2   | during the AMR time period (unless under a Management Plan): all  | ✓                         |             | 40-42                                 | All PUR required for pesticide and toxicity exceedances are listed in Appendix II.   |
|      |        | chemicals applied within the monitoring site subwatershed during the  |                           |             | Appendix II                           | The first required for positions and textory exceeded from the first interest in appointment in  |
|      |        | four weeks prior to the measured exceedance   |                           |             |                                       |  |
| 15   | Action | ns Taken to Address Water Quality Exceedances   |                           |             | · · · · · · · · · · · · · · · · · · · |  |
|      |        | Discussion of actions taken to address water quality exceedances during   |                           |             | 119-120;                              |  |
|      | 15.1   | the time frame of the AMR is included   | <b>✓</b>                  |             | Appendix III                          |  |
|      |        |   |                           |             |                                       | A complete analysis of the management practices implemented in the 7th priority  |
|      | 15.2   | Updates or additional management practices implemented  | <b>✓</b>                  |             | 120-144                               | subwatersherds in pages 120 through 126. A complete summary of management practices implemented by growers in the 2016 Focused Outreach subwatersheds in               |
|      |        |   |                           |             |                                       | Tables 55 through 58.  |

|             | 1     | Т         | 2010 F  | iiiiac                    |                               | JOIL 1                     | teview Checkii        |  |
|-------------|-------|-----------|---|---------------------------|-------------------------------|----------------------------|-----------------------|--|
|             |       | X In      | code: em meets requirement complete item / Not included ot applicable   | ets<br>nent               | Incomplete item/ Not included | included<br>Not applicable |                       |  |
| Item<br>No. |       |           | AMR Component Name  | Item meets<br>requirement | Incomple<br>included          |                            | Page #<br>(Section #) | Comments   |
| 16          | Evalu | ation of  | Monitoring Data   | ✓                         |                               |                            |                       |  |
|             | 16.1  |           | Identification of spatial trends and patterns in surface and groundwater quality  | ✓                         |                               |                            | 182-185               | Trend analysis include comparison of the frequency of exceedances between 2009 and the 2016 WY. The Coalition concluded no apparent spatial trend association between exceedances and geographical location.   |
|             |       | 16.1.1    | Incorporation of pesticide use information, as needed, to assist in data evaluation.  | ✓                         |                               |                            | Various               | Table 78 summarizes the count of exceedances and amount of pesticides applied from 2006 to the 2016 WY monitoring.   |
|             | 16.2  |           | Analyze monitoring data to determine if additional sampling locations are needed. Propose schedule for additional monitoring or source studies                              | ✓                         |                               |                            |                       | Source evaluation studies for field parameters, metals, nutrients and legacy pesticide DDE provided in other submittals.   |
| 17          | Sumr  | nary of N | litrogen Management Plan information  |                           |                               | ļ                          | 1                     |  |
|             | 17.1  |           | Aggregate information from Nitrogen Management Plan Summary<br>Reports to characterize the input, uptake, and loss of nitrogen fertilizer<br>application by specific crops. |                           | ✓<br>✓                        |                            |                       | NMP Summary Report due 1 July 2017.  |
|             |       | 17.1.1    | Include comparison of farms with same crops, similar soil conditions and similar practices.   |                           |                               |                            |                       |  |
|             |       | 17.1.2    | Submittal of aggregate data in an electronic format, compatible with ArcGIS, identified to at least the township level.   |                           |                               | ✓                          |                       |  |
|             | 17.2  |           | Statistical summary of nitrogen consumption ratios by crop or other equivalent reporting units  |                           |                               | ✓                          |                       | NMP Summary Report due 1 July 2017.  |
|             |       | 17.2.1    | Estimated crop nitrogen needs for different crop types and soil conditions in percentiles (10th, 25th, 50th, 75th and 90th) and any outliers.                               |                           |                               | <b>✓</b>                   |                       |  |
|             | 17.3  |           | Quality assessment of collected information by township.  |                           |                               | ✓                          |                       | NMP Summary Report due 1 July 2017.  |
|             | 17.4  |           | Description of corrective actions for deficiencies in quality of data submitted, if identified.   |                           |                               | ✓                          |                       | NMP Summary Report due 1 July 2017.  |
| 18          |       | mary of N | Ianagement Practice Information   |                           | I                             | 1                          | 1                     |  |
|             | 18.1  |           | Aggregate and summarize information collected from Farm Evaluations.  | ✓                         |                               |                            | 148-163               | Oct 150 control of the set of the |
|             |       | 18.1.1    | Include quality assessment of the collected information by township (e.g., missing data, potentially incorrect/inaccurate reporting).                                       | ✓                         |                               |                            | 149                   | Coalition reviewed the returned surveys and contacted members to correct inaccurate/incomplete response, and collected missing data.   |
|             |       | 18.1.2    | Description of corrective actions regarding any deficiencies in data quality.   | ✓                         |                               |                            | 149                   | Coalition followed-up with members to ensure accuracy/completeness of the returned surveys, and followed-up with members in order to achieve 100% compliance.  |
|             | 18.2  |           | Provide individual data records used to develop summary in electronic format, compatible with ArcGIS to at least township level.  | ✓                         |                               |                            |                       | An access database of individual data records by township is used to develop a summary of the management practices submitted with the Annual Report.   |
|             | 18.3  |           | Changes in patterns of implemented management practices   | ✓                         |                               |                            | Table 62;<br>various  | Changes in acreage/implemented practices were evaluated. An addendum to the Farm Evaluation will be submitted on 1 September 2017.   |

|             |      | X Inc     | code: em meets requirement complete item / Not included ot applicable  | ts<br>ent                 | te item/ Not                 | cable          |                             |  |
|-------------|------|-----------|--|---------------------------|------------------------------|----------------|-----------------------------|--|
| Item<br>No. |      |           | AMR Component Name   | Item meets<br>requirement | Incomplete item/<br>included | Not applicable | Page #<br>(Section #)       | Comments   |
| 19          | Sumn | nary of M | litigation Monitoring  | •                         |                              | •              | •                           |  |
|             | 19.1 |           | Identify measures implemented by Members or Coalition to mitigate effects of program as identified in CEQA mitigation measures   |                           |                              | ✓              |                             | There were no mitigation measures implemented during the reporting period.   |
|             | 19.2 |           | Identify potential impact the mitigation measure addressed, the location of the mitigation measure (township range, section), and any steps taken to monitor the success of the measure. |                           |                              | ✓              |                             |  |
| 20          | Mana | gement F  | Plan Progress Report   |                           |                              |                |                             |  |
|             | 20.1 |           | Background   | ✓                         |                              |                | 167-168                     |  |
|             |      | 20.1.1    | Location map(s) and summary of management plans  | ✓                         |                              |                | Appendix IV                 |  |
|             | 20.2 |           | Update on exceedances  | <b>√</b>                  |                              |                | Attachment A;<br>Appendix I | Sample and exceedance counts in Appendix I   |
|             |      | 20.2.1    | Table tallying all exceedances for management plans  | ✓                         |                              |                | 170                         |  |
|             |      | 20.2.2    | List of new management plans triggered since previous report   | <b>√</b>                  |                              |                | 171-172                     | 9 new management plans triggered during the reporting period. Table 74 summarizes the exceedance tally based on monitoring during the 2016 WY. |
|             |      | 20.2.3    | Status update on new management plans  | ✓                         |                              |                | 171                         |  |
|             | 20.3 |           | Monitoring data collected during reporting period  | ✓                         |                              |                | Attachment A;<br>various    | Management plan monitoring data collected during the reporting period are included in various tables and Attachment A.                         |
|             |      | 20.3.1    | Summary and assessment of management plan monitoring   | ✓                         |                              |                | 76-104;<br>168-172          |  |
|             |      | 20.3.2    | Summary and assessment of TMDL monitoring  | <b>√</b>                  |                              |                | 172-173                     |  |
|             | 20.4 | 20.0.2    | Outreach, education and collaboration activities   | <b>✓</b>                  |                              |                | 108-109                     |  |
|             |      | 20.4.1    | List of outreach activities and information supplied   | ✓                         |                              |                | 108-109;<br>Appendix III    | Table 44 lists the education and outreach activities during the 2016 WY.   |
|             |      | 20.4.2    | List of collaborative efforts for outreach   | ✓                         |                              |                | 108                         | Collaboration with County Agricultural Commissioners, Pest Control Advisors and Pesticide Registrants.   |
|             | 20.5 |           | Summary of management practices identified/implemented   | ✓                         |                              |                | 145-147                     |  |
|             |      | 20.5.1    | Baseline data  | ✓                         |                              |                | 119-142                     | Summary is based on priority site subwatersheds.   |
|             |      | 20.5.2    | Degree of implemented practices  | ✓                         |                              |                | 119-142                     | Presented as percentage of acreage with newly implemented management practices in high priority subwatershed.                                  |
|             |      | 20.5.3    | Evaluation of management practice effectiveness  | ✓                         |                              |                | 174-181                     |  |
|             | 20.6 |           | Performance Goal and Schedule Evaluation   | ✓                         |                              |                | 110-116                     | Performance goals for the seventh priority subwatershed is completed as scheduled.   |
|             |      | 20.6.1    | Progress in meeting performance goals  | ✓                         |                              |                | 114-116                     |  |
|             |      | 20.6.2    | Sufficient timeframe to meet scheduled deadlines in Management Plan  | ✓                         |                              |                | 110-113                     |  |
|             | 20.7 |           | Recommendations for changes to Management Plan   | ✓                         |                              |                | 191-192                     |  |
| 21          |      | nary of E | ducation & Outreach Activities   |                           |                              |                |                             |  |
|             | 21.1 |           | Location, dates, and reason for activities.  | ✓                         |                              |                | 108-109                     | Details of outreach activities summarized in Table 44.   |
|             | 21.2 |           | Summary of the content at each session.  | ✓                         |                              |                | 109;<br>Appendix III        |  |
| 22          |      | nary and  | Recommendations  Summary of the AMP results and conclusions  | ./                        |                              | 1              | 101 100                     |  |
|             | 22.1 |           | Summary of the AMR results and conclusions  Recommendations are appropriate and adequately detailed  | <b>✓</b>                  |                              |                | 191-192                     |  |
|             | 22.2 |           | Recommendations are appropriate and adequately detailed  |                           |                              |                | 192                         |  |